

**SILICON DIOXIDE RECYCLING FROM PALM OIL MILL FUEL ASH
WASTE (POMPAW) BY USING ACID LEACHING ULTRASOUND WAVE
(ALUW)**

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Thesis is submitted in partial fulfilment of the requirements
for the award of the degree of
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**Faculty of Chemical & Natural Resources Engineering
UNIVERSITI MALAYSIA PAHANG**

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SUPERVISOR'S DECLARATION

We hereby declare that we have checked this thesis and in our opinion, this thesis is adequate in terms of scope and quality for the award of the degree of Bachelor of Chemical Engineering.

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Date : 16 JANUARY 2017

STUDENT'S DECLARATION

I hereby declare that the work in this thesis is my own except for quotations and summaries which have been duly acknowledged. The thesis has not been accepted for any degree and is not concurrently submitted for award of other degree

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DEDICATION

By the name of Allah, the most Gracious and the most Merciful

I humbly dedicate my thesis to both of my beloved parents,
Rusli Bin Norani & Siti Sawinah Binti Abd Tassin

To my supportive supervisor,
PM.Dr.Ir Said Nurdin

To every each of my siblings,

To my sweetie pie,
Zulaikha Mohd Subri,

To all FKKSA's Staffs and lecturers,

Thank you for all your prayers and encouragements all the way

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LIST OF SYMBOLS

M Molarity

W Watt

LIST OF ABBREVIATIONS

POMFAW	Palm Oil Mill Fuel Ash Waste
ALUW	Acid Leaching Ultrasound Wave
EFB	Empty Fruit Brunches
PKS	Palm Kernel Shell
MF	Mesocarp Fiber
POME	Palm Oil Mill Effluent
OPT	Oil Palm Trunks
OPL	Oil Palm Leaves
OMF	Oil Palm Fronds
SEM	Scanning Electron Microscopy
XRF	X-Ray Fluorescent